



Release Highlights for CAM350 Product Version 10.5

Introduction

CAM350 Version 10.5 introduces important new functionality, including the Design Analyzer, new data translation updates for BluePrint-PCB integration, Large Address Aware (LAA) implementation for expanded memory access, Pastemask rules checks, Stream Rules Checks updates, and DXF interface updates.

New Functionality

The following functional enhancements are contained in CAM350 Version 10.5

- ✓ Design Analyzer
- ✓ BluePrint-PCB Integration Updates for Panel Data
- ✓ Large Address Aware (LAA) expanded memory access
- ✓ Pastemask Rules Checks
- ✓ Stream Rules Checks Updates
- ✓ DXF Interface Updates

Details

Design Analyzer - The new Design Analyzer tool calculates the overall complexity of the design for quoting purposes or for deciding which fabricator is qualified to manufacture the design. Sometimes changing a few rules in the design may allow it to be manufactured more quickly and accurately. The Design Analyzer allows the user to judge the technology level of a particular design. A set of analyses are run on the design to judge the complexity, not to look for design errors.

BluePrint-PCB Integration Updates for Panel Data - The File > Open command for BluePrint-PCB (*.BPD) files has been updated to transfer additional Panel information from the BluePrint-PCB database to CAM350 database. The File > Open command now transfers pinning hole, fiducial and mill tab drills (perforations) from BluePrint-PCB to CAM350. New Panel Symbols are defined for pinning holes and fiducials that are passed from BluePrint-PCB to CAM350.

Large Address Aware (LAA) expanded memory access - The LAA update expands the available memory from the standard 2 GB to a maximum of 4 GB for CAM350 on Windows XP 64 bit and Windows 7 64 bit OS platforms. The new LAA support allows users to load larger Gerber files and manage larger CAM files than previously possible.

Pastemask Rules Checks - The new layer check type for Pastemask layer type has been added to the Stream Rules Checks. The new Pastemask check includes verification for Pastemask placement and clearance. The following checks are available for the Pastemask layer type: (1) Pastemask on Throughhole Pads, (2) Missing Pastemask on SMD parts, (3) Pastemask with no Solder Mask opening, and (4) PasteMask to Copper annular ring check.

Stream Rules Checks Updates - Pads without Drills (PWOD) has been updated to optionally ignore non-circular pads. Unplated Drills to Copper (UDC) and Plated Drills to Copper (DC) checks have been updated to optionally ignore spot pads that are smaller than the drill size. Performance improvements have been delivered by algorithm updates for the following checks: Copper Slivers (CS), Solder Mask Slivers (MS), Track to Pad (TP) and Track to Track (TT). Performance improvements also include true arc clearance verification.

DXF Interface Updates - The File > Import > DXF command has been updated to support embedded direct formatting of text objects in DXF R2004 format. The File > Export > DXF command has been updated to support DXF version R2004.

Defect Fixes – Over 30 software corrections have been made to previously existing functionality, further improving upon CAM350's quality and reliability:

Highlights from Earlier Versions of 10.x

CAM350 Version 10.2 is a support release for CAM350. CAM350 10.2 includes Gerber import improvements for polygon self intersection analysis and DRC analysis accuracy updates for polygon outlines with arcs.

CAM350 Version 10.1 is a support release for CAM350. CAM350 10.1 includes performance improvements and memory usage improvements over previous releases of CAM350. Areas of improved performance include Gerber import and ODB++ import. Optimization for memory usage is delivered in CAM350 10.1 for all polygon analysis, which means that larger more complex layers of polygons can now be processed for commands such as Netlist Extract and Gerber Import. CAM350 10.1 also delivers over 50 important customer reported defect resolutions.

CAM350 Version 10.0 introduced significant new functionality, including reading and writing Blueprint-PCB files, new graphics user interface, a project explorer bar, flip panel support, design compare, Expedition cross probing, and various enhancements.

Defect fixes for CAM350 V10.5

Software corrections and enhancements have been made to previously existing functionality, further improving upon CAM350's quality and reliability:

*** CAM350 BUILD 468 ***

FILE > SAVE

Areas affected: File Save Panel NC Data

Symptoms: The File > Save command fails to save any change made to Panel NC Drill data by using the Utilities > Sort Drills Hits command to sort the Panel NC drill path.

Reference number: 54312

FILE > IMPORT

Areas affected: File Import ODB++

Symptoms: The File > Import > ODB++ command results in incorrect pad orientation for certain Allegro ODB++ files when pads are offset from pin centers for components and those components are placed on the bottom of the PCB board.

Reference number: 54333,54334

Areas affected: File Import DXF

Symptoms: The File > Import > DXF command fails to complete for certain DXF files that have font definitions that are not installed in the Windows OS.

Reference number: 54362

Areas affected: File Import GENCAD

Symptoms: The File > Import > CAD data command fails to complete for certain GENCAD files that have FILLED keywords in the ROUTES sections of the file format.

Reference number: 54387

FILE > EXPORT

Areas affected: File Import Zuken Redac

Symptoms: The File > Export > CAD data command fails to complete for certain CAM350 files that have paste mask layers in the component footprint definitions.

Reference number: 54387

ANALYSIS

Areas affected: Design Analyzer

Symptoms: Design Analyzer does not report SMD pad criteria when components are not defined in the CAM file.

Reference number: 54373

*** CAM350 BUILD 464 ***

FILE > OPEN

Areas affected: File Open Large Designs

Symptoms: The File > Open command may fail to open large CAM350 database files and report out of memory. The repair for this problem is only delivered for Windows XP 64 bit or Windows 7 64 bit.

Reference number: 53510

FILE IMPORT

Areas affected: Import Gerber Data

Symptoms: The File > Import > Gerber command fails to complete for certain files with complex polygons.

Reference number: 53952,54174

Areas affected: Import PADS ASCII

Symptoms: The File > Import > CAD Data command for PADS ASCII files does not support decal copper voids for certain PADS Layout designs.

Reference number: 54146

Areas affected: Import ODB++

Symptoms: The File > Import > ODB++ command may fail to complete for certain Genesis ODB++ files that have internal parameters for pad feature oversize or undersize.

Reference numbers: 54230

Areas affected: Import ODB++

Symptoms: The File > Import > ODB++ command may shift component pads that are offset from pin centers for certain Allegro and Expedition ODB++ files.

Reference numbers: 54249,54261

Areas affected: Import ODB++

Symptoms: The File > Import > ODB++ command may drop component pads that are offset from pin centers for certain Allegro ODB++ files.

Reference numbers: 54201, 54109

Areas affected: Import ODB++

Symptoms: The File > Import > ODB++ command may not properly define blind and buried layer pairs for certain Allegro ODB++ files.

Reference number: 53255

Areas affected: Import DXF

Symptoms: The File > Import > DXF command may fail to complete for certain DXF files.

Reference number: 53962,54238,54247,54248

Areas affected: Import DXF

Symptoms: The File > Import > DXF command may drop circles for certain DXF files.

Reference number: 53721

Areas affected: Import DXF

Symptoms: The File > Import > DXF command may fail to properly import arcs for certain DXF files. The arcs are shifted or offset.

Reference number: 53306

Areas affected: Import DXF

Symptoms: The File > Import > DXF command may fail to properly import embedded text styles for certain DXF files.

Reference number: 54089

Areas affected: Import CAD Data - GENCAD

Symptoms: The File > Import > CAD Data command may fail to properly import custom pads for certain GENCAD files with FILLED keywords.

Reference number: 54193

Areas affected: Import CAD Data - GENCAD

Symptoms: The File > Import > CAD Data command may fail to complete for certain GENCAD files with FILLED keywords.

Reference number: 54192

Areas affected: Import CAD Data - GENCAD

Symptoms: The File > Import > CAD Data command may fail to create correct padstacks for certain GENCAD files with FILLED keywords.

Reference number: 54191

FILE EXPORT

Areas affected: Export Gerber Data

Symptoms: The File > Export > Gerber command may fail to complete certain designs with complex polygons.

Reference number: 54235

Areas affected: Export DXF

Symptoms: The File > Export > DXF command may fail to fill circles for the exported DXF file for certain design data.

Reference number: 53961

EDIT

Areas affected: Rotate

Symptoms: The Edit > Rotate command may result in incorrect display of raster polygons with arcs.

Reference number: 54237

ANALYSIS

Areas affected: Streams Execution

Symptoms: Stream RC execution fails to complete for certain designs for isolated thermal check with complex negative planes.

Reference number: 53437

Areas affected: Streams Execution

Symptoms: Stream RC execution fails to complete for certain designs for track to pad check for large designs.

Reference number: 53214

Areas affected: Streams Negative Plane Checks

Symptoms: The Negative Plane Check analysis for Isolated Plane Thermals may fail to complete for certain complex negative planes.

Reference number: 53958, 53953, 53911, 53588

Areas affected: Streams Pastemask Checks

Symptoms: Pastemask analysis checks are requested by the user to verify pastemask configuration with respect to soldermask, copper and through holes pads.

Reference number: 53855

Areas affected: Streams Signal Checks

Symptoms: Signal Layer analysis checks may hang on Track to Pad (TP) analysis for certain design databases.

Reference number: 53792

Areas affected: Streams Signal Checks

Symptoms: Positive Plane Layer analysis checks may fail to complete for certain design databases.

Reference number: 53787

Areas affected: Stream Rules Checks

Symptoms: True arc analysis may cause poor execution performance times for certain design databases.

Reference number: 53662

Areas affected: Streams Signal Checks

Symptoms: Signal Layer analysis checks for Pads without Drills (PWOD) may cause false errors for designs with SMD pads on top and bottom sides at the same location.

Reference number: 54221

Areas affected: Streams Signal Checks

Symptoms: Signal Layer analysis checks for Unplated Drills to Copper (UDC) and Plated Drills to Copper (DC) may cause false errors for so-called spot pads that are smaller than the drill sizes.

Reference number: 53767

Areas affected: Streams Execution

Symptoms: Stream RC execution fails to complete for certain designs for isolated thermal check with complex negative planes.

Reference number: 53437

Areas affected: Find Pin Holes

Symptoms: When Pin Holes are automatically fixed by the Analysis > Find Pin Holes command, polygon voids may be incorrectly removed for certain designs.

Reference number: 54197

UTILITIES

Areas affected: Netlist Extract

Symptoms: The Utilities > Net Extract command does not properly merge stacked vias into the same net for stacked vias which are located at the same position and terminate on a negative plane.

Reference number: 54141

Areas affected: Netlist Extract

Symptoms: The Utilities > Net Extract command may short nets together erroneously when mill route data is present in the design database.

Reference number: 54043, 54018

Areas affected: Netlist Extract

Symptoms: The Utilities > Net Extract command may fail to complete for large databases.

Reference number: 54223

Areas affected: Netlist Extract

Symptoms: The Utilities > Net Extract command may fail to complete for certain designs.

Reference number: 54262

Areas affected: Draw To Flash

Symptoms: The Utilities > Draw To Flash > Any Angle command may fail to complete for large databases. The repair for this problem is only delivered for Windows XP 64 bit or Windows 7 64 bit.

Reference number: 54222

Areas affected: Remove Covered Data

Symptoms: The Utilities > Data Optimization > Remove Covered Data command may incorrectly remove pads that are not covered.

Reference number: 45273,51482

Areas affected: Remove Covered Data

Symptoms: The Utilities > Data Optimization > Remove Covered Data command may fail to complete for certain designs.

Reference number: 48842

REPORTS

Areas affected: Info Report Centroid

Symptoms: The Info > Report > Centroid command may fail to complete for design databases with long device names.

Reference number: 53745

USER INTERFACE

Areas affected: View Dashboard

Symptoms: After using the View > Dashboard command to turn off the Dashboard toolbar, if you then save the CAM file (or Save Defaults) and then load the saved CAM file, CAM350 may be unstable and may crash.

Reference number: 54218

Areas affected: Navigation Pane

Symptoms: When the path name is long for imported Gerber files, selection of layer names in the Navigation Pane layer bar may cause CAM350 to crash.

Reference number: 53788

MACROS

Areas affected: Netlist Import

Symptoms: When playing back a macro that imports a netlist as an External Netlist into CAM350, the final dialog for the File > Import IPC356 or IPC356A command is erroneously displayed.

Reference number: 54199

*** CAM350 BUILD 401 ***

FILE > OPEN

Areas affected: Mill Route Visibility

Symptoms: The File > Open command may fail to properly display mill routes for certain mill closed cutout shapes.

Reference number: 54076

ANALYSIS

Areas affected: Streams RC Checks

Symptoms: For certain design files with fine patterns, Streams RC may report erroneous errors for Track to Track and Plated Drill to Copper checks.

Reference number: 54074

INFO REPORTS

Areas affected: Centroid Report

Symptoms: For certain design files with long device names, the Info > Reports > Centroid command may fail to complete.

Reference number: 54072

BED OF NAILS EDITOR

Areas affected: Export CircuitLine

Symptoms: For certain design files, the File > Export command in the Bed Of Nails Editor may fail to complete for CircuitLine format.

Reference number: 54075

*** CAM350 BUILD 400 ****

FILE IMPORT

Areas affected: Import Gerber

Symptoms: The File > Import > Gerber Data command may fail or cause incorrect graphics for Gerber files that have undefined apertures.

Reference number: 53976,53815

Areas affected: Import Gerber

Symptoms: The File > Import > Gerber Data command may fail for certain Gerber files that have the percent character ("%") in aperture macro names.

Reference number: 42567

Areas affected: Import PADS ASCII

Symptoms: The File > Import > CAD Data command does not support PADS Layout version 9.2 ASCII files.

Reference number: 54003

Areas affected: Import ODB++

Symptoms: The File > Import > ODB++ command may cause pads to shift for ODB++ files that contain pads that are offset from the associated component pin origins.

Reference number: 53975

Areas affected: Import ODB++

Symptoms: The File > Import > ODB++ command fails to properly import and flatten ODB++ files that contain flipped images.

Reference number: 53778

Areas affected: Import Drill Data

Symptoms: The File > Import > Drill Data command does not support the Excellon command ("%SR*%") to end step and repeat data in drill files.

Reference number: 53863

Areas affected: Import Drill Data

Symptoms: The File > Import > Drill Data command may fail for certain Allegro generated NC Drill files.

that have very small arcs.

Reference number: 53486,51315,50813

Areas affected: Import AutoImport

Symptoms: The File > Import > AutoImport command fails to initialize colors for layers properly when the NEXT button is selected on the AutoImport dialog.

Reference number: 53852

FILE EXPORT

Areas affected: Export ODB++

Symptoms: The File > Import > ODB++ command may fail to export correct Mill data for certain Mill route definitions with arcs.

Reference number: 53853

PANEL EDITOR

Areas affected: Edit Flip

Symptoms: The Edit > Flip command may fail to properly display mill data that contains arcs for stepped images that are flipped.

Reference number: 53847

NC EDITOR

Areas affected: Add Mill Tab

Symptoms: The Add > Mill Tab command may incorrect add mill tab locations and associated perforations for certain jagged mill route patterns.

Reference number: 53822

Areas affected: Settings View Options

Symptoms: The Middle Mouse zoom setting will be lost after modifying and saving changes to the Settings > View Options dialog in the Panel Editor.

Reference number: 54002

Areas affected: Explode Step & Repeat Data

Symptoms: The Edit > Change > Explode Step & Repeat command fails to report that step and repeat (SR) NC data does not exist in the current design.

Reference number: 53848

UTILITIES

Areas affected: Netlist Extract

Symptoms: The Utilities > Netlist Extract command may fail to complete for designs that have zero size Dcodes.

Reference number: 53868

USER INTERFACE

Areas affected: Grid Visibility

Symptoms: The Grid Visibility toggle on the command toolbar may cause CAM350 to crash when the dashboard toolbar is not visible.

Reference number: 53872

*** CAM350 BUILD 391 ****

FILE IMPORT

Areas affected: Import DXF

Symptoms: The File > Import > DXF command may fail for certain DXF files

that have very small arcs.
Reference number: 53874

*** CAM350 BUILD 391 ****

FILE IMPORT

Areas affected: Import DXF
Symptoms: The File > Import > DXF command may fail for certain DXF files that have very small arcs.
Reference number: 53874

Areas affected: Import Drill Data
Symptoms: The File > Import > Drill Data command is incorrect for Seib&Meyer 3000 files that have drilled slots (code G85).
Reference number: 53835

Areas affected: Import PADS ASCII
Symptoms: The File > Import > CAD Data command will display reference designators that have PADS Label visibility set to "None".
Reference number: 53844

Areas affected: Import PADS ASCII
Symptoms: The File > Import > CAD Data command may drop drill definitions for pad stacks that have square pads.
Reference number: 53862

FILE EXPORT

Areas affected: Export DXF
Symptoms: The File > Import > DXF command will fail to complete when exporting DXF data and panel mill data layers are specified for output.
Reference number: 53834

EDIT

Areas affected: Break At Vertex
Symptoms: The Edit > Line Change > Break At Vtx command will fail to complete when modify segments for an added circle that has been sectorized.
Reference number: 53866

ANALYSIS

Areas affected: Streams Report
Symptoms: The Info > Report > Streams Results command truncates net name lists for long names or long lists of net names.
Reference number: 53776

USER INTERFACE

Areas affected: Cursor Display
Symptoms: For certain Microsoft Intellimouse Mouse drivers, the CAM350 cursor graphics may disappear for various window commands.
Reference number: 44126

*** CAM350 BUILD 389 ***

FILE IMPORT

Areas affected: Import Gerber
Symptoms: The File > Import > Gerber command loses arc precision for polygons in for certain small designs.
Reference number: 53699

Areas affected: Import ODB++
Symptoms: The File > Import > ODB++ command incorrectly assigns nets to finger edge pads for certain files output by Mentor Expedition.
Reference number: 53590

Areas affected: Import ODB++
Symptoms: The File > Import > ODB++ command incorrectly imports bottom mounted finger connector components for certain ODB++ files.
Reference number: 53686

Areas affected: Import ODB++
Symptoms: The File > Import > ODB++ command incorrectly handles angles for components and other elements for ODB++ files output by PADS Layout 9.1.
Reference number: 53668

Areas affected: Import PADS ASCII
Symptoms: The File > Import > CAD Data command may drop custom apertures for PADS 9.x files when alphanumeric pin mapping does not specify all pins in a component.
Reference number: 53675

Areas affected: Import HPGL

Symptoms: The File > Import > HPGL command fails to complete for certain HPGL files with filled polygons.

Reference number: 53666

FILE EXPORT

Areas affected: Export Gerber

Symptoms: The File > Export > Gerber command may drop some features after the import DXF command is executed for certain DXF files with polygons.

Reference number: 53672

Areas affected: Export Gerber

Symptoms: The File > Export > Gerber command may drop resolution for certain designs with filled polygons.

Reference number: 53616

Areas affected: Export Drill and Mill Data

Symptoms: The File > Export > Drill Data and Mill Data command dialogs should support the Copy Names button to copy layer names to file names just as the Export Gerber dialog already does.

Reference number: 53629

ANALYSIS

Areas affected: Find Pin Holes

Symptoms: The Analysis > Find Pin Holes command may find false errors for certain designs with complex polygons.

Reference number: 53663

Areas affected: Find Pin Holes

Symptoms: The Analysis > Find Pin Holes command may fail to complete for certain designs with polygons that have arcs.

Reference number: 53644

Areas affected: Acid Traps

Symptoms: The Analysis > Acid Traps command may find false errors for certain designs with complex polygons.

Reference number: 53680

UTILITIES

Areas affected: Quick Part

Symptoms: The Utilities > Quick Part command does not keep track of the side of the board on which the parts are placed. Quick Part should allow you to create parts from pads on the bottom side and match pads on either top or bottom side of the board.

Reference number: 53135

*** CAM350 BUILD 386 ***

FILE IMPORT

Areas affected: Import ODB++

Symptoms: The File > Import > ODB++ command may create invalid CAM data for certain ODB++ data files.

Reference number: 53591

FILE EXPORT

Areas affected: Export Composites

Symptoms: The File > Export > Composites command may fail to complete for composite definitions created by deleting table entries.

Reference number: 53597

EDIT

Areas affected: Delete Segment

Symptoms: The Delete Segment command may fail to complete for certain arcs or circles that have be sectorized.

Reference number: 53631

ANALYSIS

Areas affected: DRC

Symptoms: The Analysis > DRC command may fail to complete for certain designs with polygons that have arcs with out of memory message.

Reference number: 53627

Areas affected: Streams DFF

Symptoms: The Streams DFF check for Copper for Border minimum gap may report false errors for certain board outlines with arcs.

Reference number: 53660

Areas affected: Streams Design Compare

Symptoms: For an ODB++ file import, the Design Compare function reports false errors for TopPartOutline and BotPartOutline layers.

Reference number: 53640

UTILITIES

Areas affected: Clear Silkscreen

Symptoms: The Utilities > Clear Silkscreen command may fail to complete for certain CAM files.

Reference number: 53595

*** CAM350 BUILD 384 ***

FILE IMPORT

Areas affected: Import Gerber

Symptoms: The File > Import > Gerber Data command drops certain voids for complex outline polygons.

Reference number: 53484

Areas affected: Auto Import

Symptoms: The File > Import > Auto Import command should load IPC-D-356 and IPC-D-356-A netlist formats.

Reference number: 53551

Areas affected: Drill Data

Symptoms: The File > Import > Drill Data command does not support G85 (drilled slots) for Sieb & Meyer format.

Reference number: 53160

Areas affected: Import ODB++

Symptoms: The File > Import > ODB++ command fails to complete for certain Genesis files that have annular ring attributes and CAMTEK attributes.

Reference number: 53573

Areas affected: Import ODB++

Symptoms: The File > Import > ODB++ command fails to complete for certain Zuken files that have illegal references to layers that are not defined.

Reference number: 53577

FILE EXPORT

Areas affected: Export Gerber

Symptoms: The File > Export > Gerber Data command does not properly export arcs that are in mirrored raster polygon outlines.

Reference number: 53575

UTILITIES

Areas affected: Draw To Raster

Symptoms: The Utilities > Polygon Conversion > Draw To Raster command displays the warning message for polygons with more than 16,000 vertices multiple times for one command. There should be an option to not display the warning again.

Reference number: 53570

GUI

Areas affected: Arc segmentation

Symptoms: Arc graphics are not smooth for large arcs when you zoom such that the arc radius is larger than the width of the graphics port.

Reference number: 53579